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AMERICAN DYESTUFF REPORTER

Vol. V, No. 5

August 4, 1919

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By Bradford Webster

A Prophet Abroad
An Editorial

Additional Features for Forthcoming Chemical Show at Chicago.

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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 5 New York, August 4, 1919 No. 5

A GREAT AMERICAN ORGANIC CHEMICAL INDUSTRY

By Bradford Webster

As a result of the Great War every great and enlightened nation will develop a great Organic Chemical Industry. Spurred by the most pressing need Great Britain has taken the lead in the new development. The United States is following second and France will come third. Japan, also, is making vigorous efforts to be among the leaders.

In great Britain the government has given direct financial aid on a large scale. It absolutely controls the import of all chemicals into Great Britain. No doubt it will continue to do so.

In the United States the Government has constructed large plants for the manufacture of nitric acid and ammonia. It has given no direct financial aid to private chemical enterprises. Probably no considerable part of the American people desire the United States Government to go into the development or production of organic chemicals, or believe that a typical American bureaucracy would accomplish much in this most difficult of all industrial enterprises.

Reasonable protection against ruinous foreign competition is generally desired. It has been recommended by the President. Congress will no doubt comply with this general desire in some manner.

In the end the greatness of the American Organic Chemical Industry, like the greatness of other American industries, will depend on the greatness of American vision, insight, and resourcefulness in the realm of chemistry. The object lesson of the Great War, the newspapers and periodicals, and the American universities, is going to furnish the inspiration. By 1930 or 1935, the United States will stand first in the quality, usefulness, and quantity of its chemical products.

Thus far a large part of the development of the American organic chemical industry has been accomplished through the technical skill of American citizens of Teutonic origin and of German citizens resident in the United States. In nearly all cases it has been merely a reproduction of processes used in Germany. But it has been no mean task and the results have been of vital importance to the American textile industry and other industries dependent upon dyes.

Thorough as the German system was,

it gave no chance for any of the few master chemical minds with creative vision to leave Germany. Their place was at the central research laboratories in Germany and there they stayed.

The men sent by the German system into other countries in connection with the technical advancement of German chemical products have been substantial men, well-trained in the nature of the products and skilled in adapting and applying them. Such men are not entrusted with recent secret processes or with any manufacturing information which is not old and well-known. That is why German chemists in the United States and chemists of German origin have been able to start in this country the manufacture of colors developed twenty, thirty, and forty years ago, but have not been able to start the manufacture of colors developed during the past ten or fifteen years.

Probably the ablest man of this group in the United States is Dr. Ludwig, formerly of the Cassella Company, one of the German "big six."

Most of the sweeping development in the American chemical industry, however, will be accomplished by men of Anglo-Celtic origin. The blend of the Anglo-Saxon and the Celtic races seems to produce the highest grade of scientific genius. It should be noted that all the highest creative work in the development of the German organic chemical industry was done in South Germany and in Switzerland, where the highest type of German personality came in contact with a high type of Celtic personality, with a historic atmosphere of freedom and the presence of majestic mountains as inspiration.

Dr. E. Wallace Pierce, formerly of the United States Conditioning & Testing Company, now engaged in more effective constructive work for the American chemical industry is a good example of Anglo-Celtic American chemical genius. He probably possesses more sweeping chemical vision than any chemist of Teutonic origin in the United States.

The tendency of American young men of Anglo-Celtic origin has been toward industries of tangible greatness, like mining and steel and transportation. There has been so much call for development of such industries that not much attention has been paid to industries of more or less intangible greatness, like the organic chemical industry. The young men of America are now rapidly awaking to the possibilities of chemistry as the great field for creative effort. In a few years more this awakening will be so general that more young men of high caliber will be turning their attention to the American chemical industry than to any other. Then we shall develop the few leaders possessed of the creative genius which will lead the world in chemical development.

Chemistry deals altogether with elements and forces that cannot be seen or appreciated by the senses. The whole science of chemistry is built upon assumptions or hypotheses which are proven or established by relations between materials when brought together or the effects of heat, light, or electricity upon one or more materials. Chemical genius is the ability to formulate new and true chemical hypotheses, or by new methods to establish those not yet fully established, or to discover new and useful chemical combinations. It involves a clear idea of the fundamental relations of all the different forces in the universe. This harmonizing of all the forces in the universe into one unified system is known as the philosophy of science. Heretofore the philosophy of science has been considered impractical and academic, principally a subject for mental gymnastics and diversion of a high type. But the part played by a true philosophy of science in enabling men of vision to form true chemical hypotheses and to discover true chemical relations has made the philosophy of science intensely practical.

Philosophy of science, in its present state of development, convinces us that personality is the one universal being or existence in the universe; that radiant energy, of which light, heat and electricity are forms, is a universal attribute of personality; that matter is created by transforming very small particles of radiant energy or linear motion into energy or motion about a

point, in a manner as yet inscrutable; that radiant energy varies in character by the nature, extent, and rapidity of its wave motion; and that matter varies in character by the difference in kind of motion comprising the smallest particle and by difference in relation of the particles.

Chemistry deals with molecules and atoms. A molecule is the largest unit of which matter is composed and is made up of two or more atoms of the same kind or of two or more atoms of different kinds. The number of atoms which unite to form any given molecule and the order in which they unite can be determined in a large number of cases. It is known also that the atoms retain their identity in the union. But the movement in the structure of the atom which gives it its character is unknown. Also the nature of the movement of the atoms with respect to each other in the structure of the molecule is unknown. When our philosophy of science enables us to formulate and prove hypotheses explaining one or both of these conditions, we shall be able to move with a directness, certainty, and speed in chemical research and chemical progress scarcely conceivable at present.

Organic chemistry deals primarily with carbon, hydrogen and oxygen, those forms of matter or potential energy wherewith life principally embodies itself in animal and vegetable organisms.

Carbon is the material of which both coal and diamonds are composed. Great energy is stored in assembling the particles of carbon into the form of coal, and even greater in assembling them into the crystal form of diamonds. When carbon unites with oxygen, this potential energy is released in the form of heat. The burning of coal is the gradual releasing of atoms of carbon by heat to unite with atoms of oxygen in the air, giving off heat, some of which releases additional atoms of carbon, continuing the process so long as both carbon and oxygen are free to associate in the surroundings. In the animal body, a similar union of carbon and oxygen furnishes the energy which might be said to be guided or directed by life to maintain physical growth. Here again we reach the brink of the unknown. Philosophy of science tells us that there must be an infinite division of the will aspects of personality as well as of the force aspects of personality; and that wherever what we call life guides energy to build living organisms, will particles of personality must co-operate with force particles. How they co-operate we do not know. In vegetable life we have the reverse of what we have in animal life, carbon is absorbed and oxygen is set free. Thus the waste of animal life is the food for vegetable life.

Oxygen and hydrogen form water.

Carbon and hydrogen form marsh gas, petroleum and other mineral oils, mineral waxes, benzene, turpentine, and India rubber.

Carbon, oxygen, and hydrogen in combination by themselves form a great number of familiar materials. They form animal fats and oils, wood, oil of bitter almonds, cotton, sugar, starch, dextrine, glucose, and alcohol. They form acetic acid, carbonic acid, carbolic acid or phenol, and ether. They form menthol, camphor, and Bayer's aspirin. They form a few of the fast alizarine dyestuffs and the most importtant natural dyestuffs like logwood, cutch, fustic and cochineal.

The most important element which unites with one or more of the elements, carbon, hydrogen, and oxygen is nitrogen. Carbon and nitrogen form the very poisonous gas cyanogen. Hydrogen and nitrogen form ammonia. Carbon, hydrogen, and nitrogen unite to form fertilizers for the soil, aniline from which many dyestuffs are derived, the basis of the fast blue Indigo, and nicotine, the basic drug in tobacco.

Carbon, oxygen, hydrozen and nitrogen unite to form explosives like nitroglycerin, picric acid, and guncotton, a great number of the coal-tar or aniline dyes, celluloid, silk and wool, fertilizers, caffeine, the drug in coffee which plays such havoc with the nerves of Americans; many poisons and powerful medicines like cocaine, atrophine, quinine,

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AMERICAN DYESTUFF REPORTER
Published weekly by
HOWES PUBLISHING COMPANY
15 Park Row, New York Tel. Barclay 4879

Pointed solely toward the welfare and growth of the American Dyestuff Industry. Unbiased contributions appreciated.

A. P. HOWES, Publisher
LAURANCE T. CLARK, Editor

Domestic Subscription, $3 per year. Foreign, $4.
Advertising rates on request.

A PROFIT ABROAD

Practicable or not, accepted or not—the League of Nations idea nevertheless represents something which neither its detractors nor its supporters have sufficiently emphasized. It represents a distinct stride onward toward the millennium, and this is how it will be labeled by historians a century or two hence. It represents the latest development in our steady progress toward that broader liberalism, greater tolerance and minimization of misunderstanding in the dealings of races with each other, which was begun by and has grown with the introduction of easy communication by fast steamers, cables and aeroplanes. The slightest familiarity with world history makes it apparent to anyone that all great movements have begun in just this way, and likewise equally apparent that it is the height of unreasonableness to expect the first attempt to be one with the final form. It takes generations for such things to evolve, for they can evolve only so fast as the education and broadening of mankind proceeds and the minds of the great bulk of us attain a more rounded vision. But the important point is that we *are* attaining it and the process is going steadily on, for fifty years ago no one would have had the face to suggest a League of Nations it would have been received with universal derision; whereas to-day it is being gravely considered by all civilized countries and has been approved by most of them. It is the Idea behind it which shows unmistakably the trend of world thought; the document itself contains imperfections aplenty as to details—and it is not the purpose nor the privilege of the REPORTER to discuss its details anyway.

At all events, the idea itself has fired the imagination of at least one familiar representative of the dye industry, for from the farther side of the Atlantic the energetic Mr. H. Gardner McKerrow has sent, through the American consul, a plan for the formation of a dye league, or conference, international in scope and Hun-strafing in purpose, which he believes will make the world safe for non-Hun manufacturers of coal-tar derivatives.

Mr. McKerrow, who is in England in the interests of the National Aniline & Chemical Company, suggests that three men, consisting of a dye maker, a dye user, and an impartial business man, respectively, be sent from America, England, France, Italy and Switzerland to meet at some central place and there to determine the kind, quantity and price of dyes to be taken from Germany, and to deal with other troublesome questions arising from German dye importations.

If we have interpreted his idea aright, another portion of it proposes that these nations favor one another in such a way that a certain color would be sought first at home; then, if unobtainable from one of the other four, and as a last resort purchased from Germany in case it was still not forthcoming. "This," Mr. McKerrow contends, "is not a time for unworthy and petty jealousies, but for sympathetic and co-ordinated effort against a common commercial danger." He explains further that his plan would be administered with a view to avoiding undue competition with the respective domestic interests of the constituent countries, and that the conference of delegations would be "exclusively recommendatory" in its operations and that in no case would the executive or fiscal policies of the constituent countries, such as licensing committees or protective tariffs, be interfered with.

Mr. McKerrow is a pioneer. Not only has he plenty of vision, but likewise plenty of energy for turning ideas

(*Concluded on page* 10.)

DU PONT DYESTUFFS

Basic Colors

WHILE BASIC COLORS, considered individually, are not used in as large tonnage as some other dyestuffs, they are, however, indispensable in the most diversified industries. Their importance, therefore, becomes paramount in the dyeing and printing of cotton, wool, paper, silk, leather, and the making of lakes. In the manufacture of basic colors purity of shade, high concentration and complete solubility must have first consideration. This means careful manufacture and constant chemical control. The Du Pont Company is now offering a line of Basic Colors equal to the best ever furnished the trade and of such variety as to include the following types:

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A PROPHET ABROAD

(*Concluded from page* 8.)

into deeds. He is a good fighter and cannot be intimidated. He will truckle to no one, and there are some who have not loved him for this. He was made a scapegoat, after being cravenly repudiated by those who should have given him their support, at Rumford Hall early in 1918. Nevertheless, although he was neatly shelved, his initiative and energy were directly responsible for hastening the organization of our dye makers into a unit. There were many at that time who believed the step should be taken without delay, but, when all is said and done, it was he who sent out the letters and got them together for the first time in their lives. Moreover, all his efforts in behalf of the American dye industry have been sincere and constructive, and he deserves far more credit at the hands of the industry than he has ever received.

And we, for one, will say his idea is a good one. It is thoroughly in keeping with the spirit of the times and would be a splendid way of regulating Germany's dye output. It is directly in line with the recommendation of President Wilson in regard to the dye industry, and with the expressed desires of such of our late Allies as are now engaged in rearing infant industries of their own. We should not advocate it —nor does Mr. McKerrow intend to— as a substitute for the proposed licensing plan. But since it aids rather than interferes with the independent growth of the dye industry in each of the constituent countries, it would seem as though it might be just the parapet needed for the first line trench in the triple defence consisting of Chemical Foundation, licensing plan and Longworth tariff which we are preparing.

Whether it will ever become an actuality or not is another matter. A prophet, as everyone knows, "is not without honor, save—" And Mr. McKerrow has put the plan up to the British Government as well as our own. One never can tell, indeed, until all the returns are in.

AN AMERICAN ORGANIC CHEMICAL INDUSTRY

(*Concluded from page* 7.)

and strychnine, and urea, the princip secretion from the human body whi carries off the waste nitrogen.

These illustrations serve to show ho universal and essential carbon, hydr gen, oxygen, and nitrogen are. If w understood these four elements com pletely, we should know more about th physical universe or the force manife tation of personality than the sum tot of our present knowledge.

In the practical applications of o ganic chemistry, we might consider th following grand divisions: Dyes, e plosives, oils and waxes, perfume rubber, synthetic body materials lik celluloid, bakelite, condensite, and pyra lin, foods and beverages and medicine

Dyes

A dye is a colored substance whic can be absorbed by a fiber or tissue an be held with enough firmness or fas ness so that washing will not remove too quickly or light fade it too quickl Most dyes are very complex in the chemical structure, there being a gre number of atoms in a molecule. Th complexity and size of the molecule undoubtedly an essential condition fo the absorption by the fiber and resis ance to washing.

The great universal principle of th positive and the negative, the male an the female, applies in chemistry as i mechanics, electricity, and life. I chemistry it is the acid and the alk line. Acid dyes are attracted to an color fibers or tissues of alkaline cha acter, and alkaline or basic dyes are a tracted to and color fibers or tissues o acid character. Opposites attract; like repel.

When fibers or tissues do not comp with this principle they are often ma to do so by what are called mordan Cotton is made acid by tannic acid an then firmly attracts and holds the bri liant basic dyestuffs like methylene blu basic magenta or fuchsine, and meth violet. Wool is made basic with chro

mordants so as to attract and firmly hold alizarine and other acid dyes.

There are many natural vegetable dyestuffs and some animal ones. Logwood comes from the West Indies and the extract makes a lustrous deep black for wool. Indigo from China and British India is the original fast blue and the most famous vegetable dyestuff. The acid from the cochineal bug of Mexico is the most famous animal dyestuff and gives a brilliant scarlet. The vegetable dyes are mostly composed of carbon, oxygen and hydrogen only.

The great modern dyestuff industry, however, has to do more largely with synthetic dyes, made by intricate chemical processes from derivatives of coal-tar like benzene, toluene, aniline, and phenol. Carbon, hydrogen, oxygen, nitrogen, and sulphur are the principal elements which make up the finished dyes, carbon and hydrogen appearing in all and in the largest proportions.

The great range in shade and character of the many thousands of aniline or coal-tar dyes is due entirely to the proportions and mode of association in the molecule of the atoms of carbon, hydrogen, oxygen and one or more other elements. The highest constructive genius in the science of chemistry and some of the most brilliant reasoning in all science has been shown by the men who have worked out and proved what we know of the complex and varied ararngements of the atoms of carbon, hydrogen, oxygen and other elements in the molecules of organic chemicals like dyestuffs or dyes.

A most interesting general aspect of this question of the arrangement of the atoms in the molecule is the effect on brilliancy and fastness. The brilliant basic colors have a very loose molecular structure, broken down in the course of time by the action of light with comparative ease. But in the very fast colors the groups of atoms are very closely interwoven or interrelated, so that there is tremendous power to resist any disintegrating action of light or other radiant energy. In anthracene, from which the fastest known colors are derived, three groups of carbon and hydrogen atoms are slo closely interrelated that this might well be called the Siamese triplet of organic chemistry. Color is a result of the fact that some of the rays of the sun are reflected by certain organic chemicals while other are absorbed. A blue color is produced when the blue rays are reflected and all others are absorbed. The very fast colors are dull. Probably this is due to the fact that the closely interwoven relation of groups of atoms in the molecules of fast colors blurs the sharp, clear reflection of the looser structures. This is one of the conditions we should understand better if we knew more about the movement of the atoms in the molecule.

In several cases it is known just how changes in the proportions of the atoms and the assembling of groups in the molecule change shades. For example, the addition of a group of four atoms, one carbon and three hydrogen, in the

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AMERICAN ANILINE DYES

structure of the molecule, makes the color bluer.

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TEXTILE SUBSTITUTES IN GERMANY

(Concluded from last week.)

Fibers from Plants

Stalk fibers could be utilized from a number of German plants, *e. g.*, nettles, certain reeds (especially the Typha), broom, rye-grass and the lupins, it was stated. The yield of fiber from nettles is only 6 to 7 per cent of their weight, but the fiber has very valuable properties, being very fine and smooth and strong. These properties of the nettle were recognized before the war and considerable sums of money were spent in the endeavor to utilize that plant, but trouble was experienced in the separation of the fibers. Recently great progress has been made and some fifty processes have been patented for attaining this separation. In 1917, some 70,000 hct. of nettles were cultivated, and it is thought possible to plant a million hct. of lowlands, giving a yield of nettle-fibers of 80,000 t. annually. This yield would cover about 18 per cent of Germany's cotton requirements.

Attention has also been directed to recovering the fibers from trees, mostly the conifers. It is estimated that enough wood could be grown to supply Germany's requirements of vegetable fibers, without hindering the supply of timber for other purposes. Not much is hoped for from the mechanical treatment of wood for deriving the fibers, though, of course, wood-wool is produced, and this is spun into a coarse yarn used for making cord and rope. Experiments have been going on for some time with a view to obtaining the fibers from wood by chemical treatment, and a certain amount of success has been attained. The pure cellulose obtained is not spun direct into cellulose yarn, but is added to the cotton in the spinning process (half and half), the result being a cotton celulose mixture. Recently developments have taken place in the production of paper-stock varns. Special implements are introduced into the vat containing the paper-stock or wood-fiber paste or pulp, and curl the stock, when it is passed, wet, to the spinning machine. A coarse yarn is obtained, which, when further treated by fire spinning, gives a good thread. By this process very fine yarn can be spun, so that paper-stock yarns may be said to offer a good substitute for cotton yarns, and they can be easily worked up into articles of clothing. This product is known as cellulon, to distinguish it from other paper yarns. The Turk Co. of Hamburg (owners of the process) has recently drawn attention to this material, and a number of new factories have been erected for handling the process and for converting the raw product into finished material. The process itself can be most economically exploited in conjunction with paper mills.

The author also mentions the spinning of material from paper itself, and describes briefly the technical process for obtaining the yarn. The paper is cut into strips and curled by a special machine, and generally spun in the wet or damp state. Paper yarn so prepared is said to be hard, stiff, smooth, but not so round in section as the paper stock or paper pulp yarn. Another process consists in the chemical transformation of the pure cellulose into a pasty and gelatinous, smooth mass, which is drawn into threads. When the mass produced by nitrating or other means is pressed through a sieve or a fine nozzle, fine

threads result, which have only to be washed before being available for use. Such threads are also employed in the artificial silk industry. The treatment of the yarn after spinning is a costly process, but the finished product may be said to be called upon to help Germany out to no small extent in her present crisis.

As regards substitutes for wool, only animal fibers can, of course, be considered, and the writer mentions the wing feathers especially of pigeons and hens, which can provide suitable fibers after proper treatment. Rabbit hair and the hairs of other domestic animals could also be utilized. Finally, it is possible to spin together fibers derived from different flax or waste yarns to form the so-called "textilite."—*Textile Colorist.*

THE DYE-GEST

A department which aims to reflect and epitomize editorial comment appearing in the daily press of the nation, which concerns the American Dyestuff Industry. Complete typewritten copies of any of the editorials which are extracted here may be had for a charge of twenty-five cents each.

A POSSIBLE DELAY, AND THE QUESTION OF GERMANY'S PRICES

By the time these lines appear before readers of the REPORTER, Congress may have shut up shop for a recess to last until September 5. By that time, the Longworth tariff bill, carrying with it provision for the establishment of a dye import licensing system, may have been disposed of by our Solons, although the chances seem exceedingly slim. At the present writing, however, the House Ways and Means Committee has not yet reported the bill, and the New York *Times* calls attention to the fact that should it fail to do so, the result may be a delay of at least a month on a measure which "should have very prompt consideration and action."

This newspaper leaves little doubt as to its opinion of the arguments in favor of the proposed legislation, for it says that "they are unanswerable," and that "the plan of regulation by licenses has had the general approval both of manufacturers and consumers." After speaking of the fear that, upon the ratification of the Peace Treaty, "German products would be rushed into this country in so great a volume that the existence of American industries would be endangered," and the further apprehension that "political and party issues may be raised at Washington which would be obstructions to the early enactment of the bill," the New York editor is moved to remark that "the interests not only of the industry, but of the Nation, are involved," and concludes: "The case of the dyestuff industry is one that stands by itself; it should be considered without regard to questions of high tariff or low tariff, or protection or free trade, or of Democratic or Republican politics; and the need of prompt enactment of the Longworth bill is evident."

As to what Congress will do with the bill when it comes up for debate, the Pittsburgh *Press* feels not the slightest doubt. It confidently asserts: "The new American dye industry is not the only one which the Republican majority in Congress may be trusted to enact protection for." But it, likewise, believes it should be one of the first to be considered, because "Germany means to get back her American dye trade at all hazards." But with the Teuton's longer experience and cheaper labor, some of our new dye factories will be unable to withstand their "savage competition," and hence will need tariff protection for at least five years. "That protection,"

concludes this writer, "Congress will assuredly give."

The licensing system is the proper instrument for giving this protection, in the opinion of the Bangor (Me.) *Commercial*, and if it indeed happens to be a radical measure, and "there is some objection to this unusual form of treatment," nevertheless "the conditions are peculiar and call for commensurate treatment, even if out of the ordinary."

The Cleveland *Plain Dealer* comes to the front for continued performance of "the unquestioned economic and patriotic duty" of American dye consumers "to buy American goods whenever they will meet their needs," and unless this is done, is convinced that "we are not only likely to lose much of the business that rightfully belongs to this country, but the incentive for experiments and discovery will be seriously impaired." It joins the men of both the dye making and consuming industries, in recognition of the fact that our industry still has limitations, and that the licensing system should be employed to enable consumers to use such German dyestuffs as have not been produced here yet; nevertheless it is of the belief that "this country should continue to use her own products as extensively as practicable."

That the American dye manufacturer has not much to fear from German competition, is the interesting view taken by Benjamin F. Lippold, president of the Acme Dyestuffs Company, Inc., who, in a recent statement published in the New York *Tribune*, declared: "There will not be a great quantity of dyes brought into this country from Germany," and furthermore, that "the prices Germany will ask for these imported colors will be exceedingly high" because she will try to recover part of her indemnity by putting up the cost of what necessities she has to offer, and because of the great increase in overhead expenses in her dye industry since 1914. He does not believe that Germans can ship colors here camouflaged as the products of other nationalities, for "every dye manufacturer in every country is known to the trade" and "all colors that he makes are listed." Hence, any attempt to re-sell German dyes would be detected immediately, and in addition, he concludes, "the game is not worth the candle."

It is some time, now, since we have seen the subject of German propaganda in connection with the dye industry discussed in the daily papers except in the past tense, but it is the belief of the Columbus (Ohio) *Dispatch* that this unwelcome bugaboo has again lifted its head. The new manner of its working, together with future prices, are considered by this organ in an editorial headed "German Dyes," the concluding portion of which we present in full:

"One thing which people hear occasionally, however, should be suppressed, for it is not the truth. That is the statement which some of the merchants make concerning the quality of American dyes. Whenever a merchant tells a customer that the trouble with his goods is due to the poor quality of

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American dyes and that as soon as we begin trading with Germany we shall have better dyes, he is not telling the truth. American dyes have been proven as good as those made in Germany. They are being exported to many foreign countries and are proving satisfactory. They are going to compete with German dyes for all time to come. So one may set it down as German advertising when he hears a merchant say that American dyes are not satisfactory. The German wants nothing better in the way of propaganda or advertising, than to have a lot of people believing such statements.

"As for prices, American dyes are selling for much more than German dyes formerly sold for, of course. But German dyes will hardly sell at the prewar prices for the present, if indeed they ever do. Both as regards quality and price the American dye is going to compete with the German product, and regardless of treaties of peace or anything else, we shall always favor American-made goods to those made anywhere else on earth."

ADDITIONAL FEATURES FOR FORTHCOMING CHEMICAL SHOW AT CHICAGO

The forthcoming National Exposition of Chemical Industries at the Coliseum and First Regiment Armory, Chicago, during the week of Sept. 22nd to 27th, inclusive, holds possibilities of as great benefit to American Chemical Industry as in the past during the war period when it contributed so directly to the firm establishment of a chemical industry in this country. This exposition will prove that the chemical industry of this country is advancing by leaps and bounds; that the industries are flourishing and that the end is not yet in sight. It will show what optimism has done for the country and what a continued spirit of optimism can do.

One feature of the coming exposition will be the number of electric furnace exhibits; all the foremost companies will be there: the activity of the war period produced an increased interest in metals, not only in new alloys and in treatment of metal but in the method of manufacture. It is a sign of the times that earlier interest in electric furnaces which was of a scientific interest, now has an industrial interest and plant men all over the country are turning their attention to this developed means of smelting and melting metals.

There will be some revelations in the line of metals, acid and alkali proof bronzes that are prepared for specific purposes that even quite recently were unheard of; there will be exhibits of bronze of such hardness and strength that instruments made of it are used to cut chilled steel; this performance exceeds even the fabulous bronze of the Egyptians which history has recorded of hardness sufficient to make chisels. The exposition will prove that modern metallurgy and the chemistry of metals has made quite as gigantic strides in the last few years as modern organic chemistry. Much of its wartime developments could not be made known till now

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Amanil Colors for Cotton
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FOR MEN'S WEAR:

Amacid Chrome Colors
Alizarine Navy Blue
Alizarine Chrome Red
Alizarine Yellow
Alizarine Brown

Basic Colors

Offices:
Boston, Mass.
Philadelphia, Pa.
Danville, Va
Chicago, Ill.

and the exposition offers the first public introduction.

The advancement of electrochemistry particularly as related to electric steel, brass, bronzes, and the furnaces used has created a broader interest than in the strictly electrochemical field, and we now find the American Institute of Mining & Metallurgical Engineers joining with the American Electrochemical Society in a meeting during the exposition to discuss electric steel and electric furnaces; in the evening after the meeting a program of motion pictures upon various phases of electric furnaces in their operation will be shown at the exposition.

The United States Bureau of Mines will have on exhibit some thirty metals showing the complete course of extraction from their ores, the various stages through which they pass and the materials used in their extraction.

The fields of organic chemistry in dyes, pharmaceuticals and various organic products have made great strides in the last year, and will demonstrate that the greatest achievements in the war period were not of organic products for the taking of life alone or for temporarily incapacitating men. The technical organic chemical products will probably arouse the greatest interest, being as they were, nearly all developed for war use; a great many in the way of protection against water or disintegrating or corrosive liquids, gases and fire. These products, now on a peace basis, are finding their way into the mechanical industries and the arts. These are decided improvements and will take the place largely of many natural products having less desirable properties.

The mineral world and mineral utilization will come in for its share of recognition and will show that in the general advancement of the Chemical industries it has taken no small part. Ceramics will be brought strongly to the front through exhibits of products and materials developed for specified purposes during the war period and just now permitted free display for the industries that can use them.

Among the numerous instruments, devices and apparatus that have been perfected during the intense war period for precise measurements of temperature, weights, volumes, velocities, flow of liquids, gases, solids, electric current and any and all kinds of commodities that are to be measured, their number is legion and they occupy no small space in this great exposition.

Of plant equipment used for distinct chemical reactions, there will be large numbers of exhibits. It will surprise many to view these and consider the various and unexpected applications for and the industries in which they enter. While designed for some particular purpose in a chemical plant they have been found of even greater service in far removed and dissimilar industries. There will be many engineering devices and articles of equipment for plants and factories in general, placed in the exposition by manufacturers upon whom the seeds of chemical knowledge distributed throughout the country in the past four years have not fallen barren, they have realized that the expression "Chemical industries" is more comprehensive than the mere manufacture of chemicals; notable among these exhibits are those of conveying systems, elevating systems, weighing and measuring devices, tiering and stacking machinery as well as hoists and cranes.

The indifference of manufacturers and large companies to the health and welfare of workers in plant, factory and mine is now being offset by a growing and active interest in the welfare and protection of the employee from danger through disease, accident or any of the

Bosson & Lane

Manufacturers

Castor Oil Products
Alizarine Assistant
Turkey Red Oil
Oleine Oil
Soluble Oil
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Castor Soap Oil

Works and Office: Atlantic, Mass.

hazards attending the particular industries. The workman's body parts are being protected by varied kinds of protective equipment for the chemical, gas, electric, metal smelting, mining and manufacturing industries, as well as his eyes by goggles and shields, his breathing apparatus by masks, hoods and breathing pieces, his health through his stomach by various devices and methods, and the prevention of accidents by signals and devices. Of these safety appliances there will be exhibits of varied interest. The United States Bureau of Mines will feature their safety work in the plant and the mine, and in connection a special program is being arranged under the chairmanship of M. F. Leopold, Safety Engineer of the Bureau of Mines.

With a capital of $25,000, the Austinol Chemical Co., Inc., has been incorporated under the laws of New York to engage in the manufacture of chemicals and allied specialties. Headquarters will be in New York City.

Chas. A. Hardy was elected as third assistant treasurer of the American Woolen Co., at the recent annual spring meeting of that company at Springfield, Mass.

W. F. Seyer, of McGill University, Montreal, is conducting a series of experiments in an effort to discover a method of utilizing the tar sand of the Athabasca River region in Northern Alberta in the manufacture of dyes. The deposits of sand being studied occupy a territory of about 1,200 square miles in extent and vary in depth from 20 to 25 feet.

September 30 has been announced as the date on which the Government will turn back the Grand Central Palace, New York City, to the Merchants & Manufacturers' Exchange. The building will be used, as heretofore, as a permanent showplace for manufactured products and for the exposition previously held there.

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AMERICAN DYESTUFF REPORTER

15 Park Row, New York City

NOTES OF THE TRADE

The Nightingale-Morse Mill, Incorporated, will construct a new hydro-electric power house in its plant at Putnam, Conn. The cost will be $80.000.

The Gray, Barr Company has been incorporated under the laws of Ohio, to operate a hosiery mill. The capital stock is $100,000, and headquarters will be at Elyria.

A recent fire in the Brooklyn plant of the National Aniline & Chemical Company, Inc., damaged the works to an extent which is estimated to be in the neighborhood of $50,000.

Among the speakers at the meeting of the Dye Section of the American Chemical Society to be held in Philadelphia, September 2 to 6, inclusive, will be Secretary of War Newton D. Baker. While Mr. Baker's subject has not as yet been announced, it is believed that he will tell of the work of the Chemical Warfare service.

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The Solubility of This Product Is Equal, and in a Great Many Cases Superior, to Pre-War Types

Newark Chrome Black PV

A Color of Unexcelled Fastness to Fulling and Potting

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A Color of Excellent Fastness to Fulling and Light. Suitable for Raw Stock, Yarn and Piece Dyeing

The total capitalization of British Dyestuffs Corporation, which consists of the merger of British Dyes, Ltd., and Levinstein, Ltd., is announced at $30,000,000. There will be two representatives of the British Government on the board of directors.

C. R. Turn, A. C. Huber and Philip Sabatino are organizing the Roseto Company, Inc., at Roseto, Pa., to operate a silk mill which will contain sixty rooms. A site 150 x 400 feet has been purchased.

With an estimated loss of $5,000, fire recently destroyed a portion of the building occupied by the Hachmeister-Lind Chemical Company, 2332 Forbes Street. The work of reconstruction was begun immediately and is now rapidly going forward.

According to a recent ruling of the War Trade Board American consuls abroad have been instructed to issue certificates of non-enemy origin before certifying invoices covering shipments of potash, dyes and dyestuffs, or drugs and chemicals, intended for importation into the United States.

R. Lechner Co., *Inc.*

Specialists in Dyestuffs, Dyewood Extracts, Etc.

200 Fifth Avenue **New York**

We urge that the Textile Industry support the stand of the American Dyestuff Reporter for an American Dyestuff Industry.

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ATLANTA, 1418 Empire Building
CHICAGO, 317 Clark Street
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CHARLOTTE, 210 South Tryon Street

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